

Effects of Nicotine on Insulin: Actions and Implications

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In 1988, we reported that nicotine decreases plasma levels of insulin in a dose-response fashion. More specifically, two weeks of continuous administration by osmotic minipump of 6 mg and 12 mg nicotine/kg body weight/day to rats results in significant decreases in plasma insulin. Recently, we found that plasma insulin increases after cessation of this type of nicotine administration, slightly overshooting control values for a few days. We have continued to explore the effects of nicotine on insulin. The presentation will review our findings regarding nicotine's effects on insulin and will present new data indicating that nicotine administration somewhat decreases pancreatic levels of insulin and slightly increases levels of insulin in the hypothalamus. The implications of these findings for nicotine's effects on body weight, specific food preferences, energy expenditure, and energy efficiency will be discussed. Moreover, the possible role of insulin as a modulator of nicotine reinforcement will be discussed.

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